Implementation of a Centralized, Cost-effective Call Center in a Large Urology Community Practice

Stephen F. Kappa, MD, MBA, Chris McClain, RN, Krista Wallace, Paul Cinquina, Don Lawson, Mary M. Smith, Earl Walz, MBA, Brooke Edwards, MD, Gary M. Kirsh, MD
The Urology Group, Cincinnati, OH

Call centers provide front-line care and service to patients. This study compared call-answering efficiency and costs between the implementation of an internal, centralized call center (January to July 2019) and previously outsourced call-center services (January to July 2018) for a large urology community practice. Retrospective review of call metrics and cost data was performed. Internal call-center leadership, training, and culture was examined through survey of staff and management. A total of 299,028 calls with an average of 5751 calls per week were answered during the study periods. The Average Speed of Answer (ASA) was 1:42 (min:s) for the outsourced call center and 0:14 for the internal call center ($P < 0.001$), with 70% of outsourced calls answered under 2 minutes compared with 99% of calls for the internal call center ($P < 0.001$). The Average Handle Time (AHT) for each outsourced call was 5:32 versus 3:41 for the internal call center ($P < 0.001$). The total operating expenses were 7.7% lower for the internal call center. Surveys revealed the importance of engaged leadership and staff training with feedback, simplified work algorithms, and expanded clinical roles. We found that internal, centralized call centers may provide a call-answering solution with greater efficiency and lower total operating expense versus an outsourced call center for large surgical practices. A culture that emphasizes continuous improvement and empowers call-center staff with expanded clinical roles may ultimately enhance patient communication and service.

[Rev Urol. *2020;22(2):67–74*]

© 2020 MedReviews®, LLC

KEY WORDS

Call center • Telehealth • Cost effectiveness • Organizational efficiency

Patients desire timely, convenient, and efficient care when they call to schedule an appointment, request a medication refill or test result, or report a bothersome symptom. The telephone call experience significantly influences patient satisfaction—a frequently referenced metric for healthcare provider and organizational performance.[1,2] The central role of telephone communication with patients draws parallels to other service-oriented industries, where the call-center experience is a key driver of service selection and customer retention.[3]

Beyond satisfying patients and providing administrative support, the call center functions as a form of telehealth, in that patient care is delivered through clinical triage and other services.[4] A high-performing call center is important in a medical-legal sense as well: medical errors can result from inadequacies in this front-line service.[5] In an era of increasing utilization of telehealth services, the call center remains a critical and rapidly evolving system that both delivers and supports patient care.

Our large community practice of nearly 40 urologists and other specialists who deliver integrated urological care recently transitioned through three systems for managing patient care–related and administrative telephone calls (Table 1). System 1 was defined by the historical approach of decentralized call answering by assigned staff in each office location, for which data was not fully available. Concern for significant variability in call-answering processes and performance among office locations resulted in the decision to transition to System 2, which involved the centralization of all inbound calls managed off-site by a third-party (outsourced) call center. System 2 was characterized by prolonged call queue times, poor performance on other call metrics, and frequent patient and referring provider complaints. System 3 represents our present-day solution of centralizing all inbound calls in a single office location (internal call center).

TABLE 1

Profile of Urology Practice and Patient Volume[a]

The Urology Group, Cincinnati, OH	Description
Total providers (MD, DO, NP, PA) (no.)[b]	43
Total employees	302
Administrative staff (no.)	196
Clinical Staff (Nursing, Medical Asst.) (no.)	106
Practice duration since founding (y)	23
Metropolitan region service area, population (no.)[c]	2.1 million
Hospital sites covered (no.)	14
Office locations (no.)	12
Outpatient encounters (no.)	253,277
Yearly (avg.)	168,851
Weekly (avg.)	14,070
Surgical case volume (no.)	58,519
Yearly (avg.)	39,273
Weekly (avg.)	755

[a] Practice profile and patient volume reflect 1.5 years encompassing both study periods and transition period from January 2018 through June 2019.

[b] Includes affiliated providers (radiation oncology, pathology, anesthesiology).

[c] United States Census Bureau, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018.

The purpose of this study was to compare call-answering efficiency and costs between an internal, centralized call center and outsourced call-center services. We hypothesized that an internal, centralized call center would improve patient service and call-center metrics in a cost-effective manner, after an initial investment in staff training, facilities, and equipment for the transition. Ultimately, our hope is that this contemporary call-center experience can inform improvement efforts for other medical call centers.

Materials and Methods

A before-after analysis compared the implementation of an internal call center to previously outsourced call-center services for a large urology community practice. Two 6-month time periods were compared: January to July 2018 (outsourced call center) versus January to July 2019 (internal call center). These periods were chosen to avoid differences in seasonal call volume and exclude the transition period during implementation of the new internal call center. A retrospective review of available call metrics and cost data was performed.

Available call metrics for both study periods included total and weekly number of inbound calls, average speed of answer (time required to answer each call), and average handle time (time required to complete each call, including hold time). Average call transfer rate (calls transferred to office clinical or administrative staff for assistance) and average abandonment rate (percentage of callers who hang up before the call is answered) were available for the internal but not the outsourced call center. Data was not available or was incomplete for some industry standard key performance indicators (KPIs) for contact centers, including first call resolution (percentage of calls resolved without call transfer, return, or escalation to a manager).[6]

Total operating expenses were available for both call-center experiences and were also reviewed on a cost-per-call basis. An examination of internal call-center leadership, training, and culture was assessed through survey of staff and management.

We compared call-center metrics using appropriate statistical testing: t test comparisons for continuous variables and χ^2 tests for categorical variables. All tests of significance were two-tailed with $P < 0.05$ deemed significant.

Results

The total number of inbound calls answered was 299,028 during the two study periods, with an average of 5751 calls per week (Table 2). In comparing the two call-center experiences, call volume was higher for the outsourced call center, but patient encounters and surgical case volume were similar for both study periods. The average speed of answer was 1:42 ± 0:34 (min:s ± standard deviation) for the outsourced call center and 0:14 ± 0:01 for the internal call center ($P < 0.001$), with 70% ± 10% of outsourced calls answered under 2 minutes compared with 99% ± 1% of calls for the internal call center ($P < 0.001$). In examining outlier call queue experiences, the average longest weekly speed of answer was 35:12 ± 24:32 for the outsourced call center versus 4:58 ± 1:17 for the internal call center ($P < 0.001$). Although weekly call metric reports for the outsourced call center were incomplete in terms of proportion of calls answered in over 5 minutes, the internal call center demonstrated only 0.05% of calls with this extended queue time.

The average handle time for each outsourced call was 5:32 ± 0:34 versus 3:41 ± 0:12 for the internal call center ($P < 0.001$). The average call transfer rate was 0.2% for the internal call center but not available for the outsourced call center. The average abandoned call rate was 1.1% for the internal call center, with incomplete data for the outsourced call-center experience.

Cost data is summarized in Table 3. The overall total operating expenses for the outsourced call center were $583,000.02 compared with $541,223.43 for the internal call center, reflecting a difference of $41,776.59 or 7.7 % lower total operating expense for the internal call center. On a cost-per-call basis, the outsourced call center was ostensibly less expensive at $3.59 ± $0.38 per call compared with $4.02 ± $0.58 per call for the internal call center ($P = 0.152$). However, the lower cost per call for the outsourced call center—a statistically insignificant difference—was driven both by higher call volumes (ie, a larger denominator) as well as higher first month costs associated with the transition to the internal call center ($116,847.99 for first month total operating expenses), with more comparable costs per call observed in subsequent study months.

The call-center vision and strategy is summarized in Table 4 from survey of staff and management, revealing the importance of engaged administrative and clinical leadership, rigorous staff training and coaching with transparent performance metrics, simplified work algorithms with standardized administrative and clinical resources and protocols, and expanded clinical roles and exposure for call-center staff that emphasize improving patient service.

TABLE 2

Outsourced vs Internal, Centralized Call Center

Call Center Performance Metric	Outsourced Call Center	Internal Call Center	*P* Value
Total inbound calls (no.)	164,229	134,799	—
Outpatient encounters (no.)	80,751	88,948	—
Surgical case volume (no.)	20,798	20,027	—
Average inbound calls per week (no.)	6317	5185	< 0.01
Average speed of answer (min:s)	01:42	00:14	< 0.01
Average longest weekly speed of answer (min:s)	35:12	05:04	< 0.01
Distribution of short and long speeds of answer			
Under 2 min (%)	70%	99%	< 0.01
Over 5 min (%)	—	0.05%	—
Average handle time (min:s)	05:32	03:42	< 0.01
Average call transfer rate (%)	—	00.2%	—
Abandoned call rate (%)	—	1.1%	—

TABLE 3

Call Center Cost Per Call

	Outsourced Call Center (2018)			Internal Call Center (2019)		
Month	**Cost[a]**	**Calls**	**Cost/Call[b]**	**Cost[a]**	**Calls**	**Cost/Call**
January	$97,166.67	24,484	$3.97	$116,847.99	23,754	$4.92
February	$97,166.67	31,487	$3.09	$74,292.62	20,277	$3.66
March	$97,166.67	26,535	$3.66	$79,724.21	21,649	$3.68
April	$97,166.67	24,778	$3.92	$99,345.68	22,582	$4.40
May	$97,166.67	26,036	$3.73	$97,779.43	23,551	$4.15
June	$97,166.67	30,909	$3.14	$73,233.50	21,972	$3.33
Total[c]	**$583,000.02**	**164,229**	**$3.59**	**$541,223.43**	**134,799**	**$4.02**

[a] Total monthly operating expenses in dollars.

[b] Cost per call equals total monthly operating expenses/calls, with a mean (standard deviation) cost per call of $3.59 ± $0.38 for the outsourced call center and $4.02 ± $0.52 ($P = 0.152$ on *t*-test comparison).

[c] Totals represent January-June total operating expenses; January-June total calls; mean monthly cost per call.

TABLE 4

Call Center Vision and Strategy

Vision	Description
Patient-centered, quality call-center care and service	Deliver timely, convenient, and efficient patient care and service through internal, centralized call center
Management and staff with shared purpose and passion	Aligned management and staff, advocating for patients in developing and continuously improving call-center service
Leadership	**Strategy**
Senior Administrative and Clinical Support	Physician and non-physician buy-in and involvement in call-center creation and ongoing process improvement
Call Center Manager	Call Center Manager with RN and data analytics/IT credentials, experience working with physicians, staff, and patients with understanding of organizational culture
Call Center Assistant Manager	Early identification of leader within call center for expanded clinical and mentorship roles
Staff Training and Technology	**Strategy**
Continuous training and coaching	Focus on continuous training and coaching; staff provided with transparent performance reports and feedback, with mentorship with manager and staff leaders
Clinical and practice education	Training notebook including telephone nursing practice manual, practice resources, "Urology 101" educational materials, educational emails/quizzes, staff and physician lectures
Simplified work algorithms	Clear, concise workflow to limit call handle time; quick reference spreadsheet with standardized administrative resources and clinical protocols
Software	Partnership with vendor with easy-to-use software and robust metrics reporting capability
Culture	**Strategy**
Patient advocacy	Call-center staff = *advocates* for patients; regular reminders of the critical front-line role of the call center
Office motto	*"Whatever It Takes"*—expanding resources to serve patients and complete the call
Connection to patient care	Ability to report clinical results, refill medications with specialized training and supervision; support of office clinical staff for complex calls; location of call center within busiest outpatient office to engage and incorporate call-center staff with physicians, management, nursing, and other clinical staff

Discussion

Centralized call centers managed on-site by large surgical practices can provide a high-performing, cost-effective solution to answering patient and administrative telephone calls. In this study, we found that compared with our experience with an outsourced call center, an internal, centralized call center provided faster call answering times, faster call completion, and a low average call transfer rate and average abandoned call rate compared with industry standards. These improvements in call-answering efficiency and patient service were achieved with a 7.7% lower total operating expense during the 6-month study period.

To our knowledge, this is the first study to report on a contemporary call-center experience for a large urology community practice spanning multiple states with high call volume. There are, however, studies in the literature examining non-urology physician practice, health system, and outpatient pharmacy call centers that influenced our call-center design, implementation, and ongoing process improvement.

Rohleder and colleagues reported on the Mayo Clinic's process improvement effort at its call center, focusing on using data to drive change, including call demand, capacity, and optimal resource configuration.[7] Using simulation and optimization modeling operations research tools, their team better matched staff to patient call demand, leading to a remarkable 70% improvement in average speed of answer and average abandonment rate. Other studies in the literature have focused on utilizing call centers for resource-limited regions, using evidence-based guidelines to better triage care and improve access to providers for high-risk patients.[8]

There are also several published reports on the call-center experiences of pharmacies, a demanding market characterized by fierce competition and the need for integrated, personalized care. Rim and colleagues from the University of Utah demonstrated successful centralization of pharmacy services, as well as more streamlined medication refills, a process we have implemented for select routine urologic medications.[9,10] A successful centralized pharmacy call center has also been implemented at the Veterans Health Administration, demonstrating increased patient access, reduced provider workload, and decreased average call abandonment rate, further highlighting both the feasibility and benefits of centralizing this service.[11,12] These reports in the literature, as well as our own experience with successful centralization of other clinical operations, led to a desire to pursue a centralized approach.

Literature from other industries also demonstrate call-center experience and innovation. American Express reinvented its call center by recognizing that "customers know instantly when a service professional really cares, is listening, and takes accountability for addressing their needs."[13] T-Mobile also radically changed its approach to its call center, creating a "knowledge-work environment" where call-center employees "sit together in shared spaces called pods, collaborate openly, and are training and encouraged to solve customer issues as they see fit."[3] Although the stakes may be different between healthcare and credit card or cellular phone services, the principles of customer service are the same and helped inform our approach to the call center.

Given the unsatisfactory results we experienced with our outsourced call center, management developed a plan to transition to an internal call center and achieved buy-in with the physicians. Building our call center from scratch allowed us to design a center that was more effective for patients *and* physicians. Patients deserve timely, convenient, and efficient service. Physicians and their clinical staff benefit significantly when routine tasks can be offloaded to the call center. Accordingly, we purposefully designed a call center that would be empowered not only to complete routine tasks such as centralized appointment scheduling and the like, but also to perform medication refills and provide clinical test results within parameters approved by the physicians. To achieve this vision, we needed management, staff, and physicians aligned with a shared purpose and passion.

Our strategy in building the call center was multi-pronged, with an emphasis on leadership, technology, staff training, and culture (Table 4).

We recruited capable leadership to manage the call center. We promoted an individual who is an RN and who also has had experience in information technology and familiarity with our organizational culture. We purchased user-friendly call-center software with robust reporting metrics. All staff were provided a training notebook that included a nursing practice manual, a description of practice resources, and "Urology 101" educational materials. Call-center staff were trained to utilize a simplified, streamlined workflow for completing a call that was more flexible and less algorithm-based than that utilized by our previously outsourced call center, which we believe contributed to improved call handle times by encouraging staff to use their knowledge and experience to efficiently reach a satisfactory resolution to each call.

Call-center staff are provided immediate performance metric feedback, which enhances their efficiency. Encouraging staff to escalate more complicated calls to supervisors or managers results in improved staff and patient satisfaction. A system of ongoing staff training utilizing periodic clinical updates, clinical lectures from physicians, and even periodic call-center staff quizzes has contributed to our success. Some of these principles are famed parts of the Toyota Production System, where problem solving and learning are seen at all levels of the organization, resulting in a "disciplined yet flexible and creative community of scientists who continually push Toyota closer to its zero-defects, just-in-time, no-waste ideal."[14]

The final prong of our strategy was to build a culture where staff take pride in their front-line connection to patient care, doing "whatever it takes" to help patients. To emphasize this culture, we use the term *advocates* instead of *staff* or *agents* for our call-center employees because we believe their primary role and responsibility is to support patients as they navigate a complicated health care system. Call-center culture is enhanced by expanding the clinical role of the advocate. Advocates have a sense that they are truly connected to patient care when they are charged with routine medication refills and reporting test results, as mentioned above. As our call center has evolved, we have also implemented a centralized nurse triage functionality to handle incoming calls with medical concerns.

There are several strengths to this study. We report on two comparable 6-month periods to avoid seasonal call variation for a call center with many inbound calls. In so doing, we have established performance benchmarks for a surgical call center given the sparse literature on the topic, although these benchmarks notably outperform other industry standards and require dedicated leadership and practice resources. Lastly, this study demonstrates that a centralized internal call center is both attainable and cost-effective relative to outsourced call-center services and can provide numerous benefits to patients and practices.

There are also limitations to this study. We have incomplete data on some standard call-center metrics for the outsourced call-center experience, limiting a full comparison. Additionally, notwithstanding the fact that we carefully selected our study periods so that they would be as comparable as possible, there are inevitably practice variables that cannot be controlled for in a retrospective review that could influence call-center metrics in the study periods. Finally, the generalizability of both our improvements in patient service and lower total operating expenses may be limited for smaller physicians practices (who cannot benefit from the economies of scale and efficiencies of centralized services) or larger health systems (whose call centers may manage multiple medical specialties with diverse patient needs beyond our single specialty experience). However, our call metrics benchmarking and strategies to improve call-center culture are relevant to any practice striving to improve its workplace and patient communication and service.

Although telehealth services in urology are in their early stages, we see the internal, centralized call center as an initial step towards implementing a telehealth "hub," where clinical protocols can be implemented using an infrastructure that can be leveraged as we grow our telehealth practice going forward.[15] We anticipate that internal, centralized call-center services that provide timely, convenient, and efficient patient care and service will become increasingly important to large surgical practice as healthcare services adapt during this period of rapid change.

Conclusions

Internal, centralized call centers may provide a more efficient call-answering solution at a lower total operating expense compared with outsourced call-center services for large surgical practices. A culture that emphasizes continuous improvement and empowers call-center staff as patient advocates with expanded clinical roles may ultimately enhance patient communication and service. ■

References

1. Gustafson BM. A well-staff PFS call center can improve patient satisfaction. *Healthc Financ Manage*. 1999;53:64-66.
2. Junewicz A, Youngner SJ. Patient-satisfaction surveys on a scale of 0 to 10: improving health care, or leading it astray? *Hastings Cent Rep*. 2015;45:43-51.
3. Dixon M. Reinventing customer service. *Harvard Business Review*. 2018;November-December:82-90.
4. Tuckson RV, Edmunds M, Hodgkins M. Telehealth. *N Engl J Med*. 2017;377:1585-1592.
5. Goodwin B. Telephone triage can jeopardize patient safety, lead to litigation. *Urology Times* website. https://www.urologytimes.com/malpractice-consult/telephone-triage-can-jeopardize-patient-safety-lead-litigation. Posted May 23, 2017. Accessed June 25, 2020.
6. North American Customer Service Management Association. New/existing contact center sites: contact center leadership KPI's. https://northamericancustomerservicemanagementassociation.org/contact-center-leadership-kpis/. Accessed June 25, 2020.

7. Rohleder T, Bailey B, Crum B. Improving a patient appointment call center at Mayo Clinic. *Int J Health Care Qual Assur*. 2013;26:714-728.
8. Rhoads SJ, Eswaran H, Lynch CE. High-risk obstetrical call center: a model for regions with limited access to care. *J Matern Fetal Neonatal Med*. 2018;31:857-865.
9. Rim MH, Thomas KC, Chandramouli J. Implementation and quality assessment of a pharmacy services call center for outpatient pharmacies and specialty pharmacy services in an academic health system. *Am J Health Syst Pharm*. 2018;75:633-641.
10. Rim MH, Thomas KC, Hatch B. Development and implementation of a centralized comprehensive refill authorization program in an academic health system. *Am J Health Syst Pharm*. 2018;75:132-138.
11. White CA, Jones MR, Kuester MK. Impact of regional pharmacy call center on telephone access metrics within the Veterans Health Administration. *Hosp Pharm*. 2015;50:370-375.
12. Kharlamb V, Erato M, Fodes D. Implementation of a pharmacy call center. *Am J Health Syst Pharm*. 2011;68:2018, 2020, 2022.
13. Bush J. How American Express transformed its call centers. *Harvard Business Review* website. https://hbr.org/2011/04/american-express-how-we-transf. Posted April 19, 2011. Accessed June 25, 2020.
14. Spear S, Bowen HK. Decoding the DNA of the Toyota production system. *Harvard Business Review*. 1999;September–October:77.
15. Castaneda P, Ellimoottil C. Current use of telehealth in urology: a review. *World J Urol*. 2019. doi: 10.1007/s00345-019-02882-9. Online ahead of print.